



US 20050134562A1

(19) **United States**(12) **Patent Application Publication** (10) **Pub. No.: US 2005/0134562 A1**  
Grant et al. (43) **Pub. Date: Jun. 23, 2005**(54) **SYSTEM AND METHOD FOR  
CONTROLLING HAPTIC DEVICES HAVING  
MULTIPLE OPERATIONAL MODES**(76) Inventors: **Danny A. Grant**, Montreal (CA);  
**Kollin M. Tierling**, Milpitas, CA (US);  
**Juan Manuel Cruz-Hernandez**,  
Montreal (CA); **Alex S. Goldenberg**,  
San Francisco, CA (US)

Correspondence Address:

**COOLEY GODWARD LLP****ATTN: PATENT GROUP****11951 FREEDOM DRIVE, SUITE 1700****ONE FREEDOM SQUARE- RESTON TOWN****CENTER****RESTON, VA 20190-5061 (US)**(21) Appl. No.: **10/873,643**(22) Filed: **Jun. 23, 2004****Related U.S. Application Data**(60) Provisional application No. 60/530,979, filed on Dec.  
22, 2003.**Publication Classification**(51) **Int. Cl.<sup>7</sup>** ..... **G09G 5/08**(52) **U.S. Cl.** ..... **345/161**(57) **ABSTRACT**

A haptic device having a plurality of operational modes, including a first operational mode and a second operational mode is provided. The first operational mode is associated with a frequency range. The second operational mode is associated with a frequency range that is different from the frequency range of the first operational mode. A controller is coupled to the haptic device, and is configured to send the haptic device a plurality of control schemes. Each control scheme is uniquely associated with an operational mode from the plurality of operational modes.

Another embodiment provides a method that includes providing power to a haptic device configured to cause the haptic device to provide a haptic sensation above a pre-determined sensation threshold. A voltage pulse that is configured to change the haptic sensation output by the haptic device by a pre-determined amount within a pre-determined time period is also applied to the haptic device.

